

REMARKS

This responds to the Office Action dated October 29, 2008.

Claims 26, 39, 41, 83, 89, 95, 119, 134, 145 and 146 are amended, no claims are canceled, and no claims are added; as a result, claims 4, 6, 14, 16-20, 26-28, 38-41, 46-48, 65, 66, 68-71, 74-79, 83-86, 89-91, 95, 113, 119, 120, 123-127, 131-138, and 141-150 are now pending in this application.

§112 Rejection of the Claims

Claims 84 and 136 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claim 83 has been amended. Claims 84 and 136 directly or indirectly depend from claim 83. Applicant respectfully requests that the rejection be removed.

§103 Rejection of the Claims

Claims 26, 6, 14, 16-20, 27, 28, 38, 46-48, 120, 124-127, and 131-133 (Claim Group 1); 95 (Claim Group 5); and 134, 68-70, 141 and 147 (Claim Group 8) were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hagiwara et al. (U.S. Patent No. 6,630,523).

Independent Claim 26

Currently amended claim 26 recites, among other things, “one or more corrosion-inhibiting carbon pigments in an effective corrosion-inhibiting amount; one or more rare earth compounds; one or more substantially insoluble inorganic extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof; and one or more binders; wherein at least one of the one or more inorganic extenders is calcium sulfate, calcium hydrogen sulfate, calcium phosphate, calcium hydrogen phosphate, calcium di-hydrogen phosphate or combinations thereof; wherein the non-chromate containing composition is capable of curing naturally and, upon curing, is capable of generating a pH between about 2 and about 8 at an interface between the composition and a substrate”. The Hagiwara does not disclose a composition “capable of generating a pH between about 2 and about 8 at an interface between the composition and a substrate.”

Further, the Hagiwara reference teaches away from the specific composition provided by the present claim. Applicant's present composition purposely contains no chromate compounds due to their known toxicity. Hagiwara teaches the use of chromate compounds as extenders (Hagiwara at col. 3, lines 50-51). The Hagiwara reference focuses on increased dispersibility of components with no regard for their anti-corrosive properties. The reference describes "laundry lists" of components with no discussion of how they affect the corrosion fighting abilities of the overall composition. One skilled in the art would not be able to use the Hagiwara reference to come up with Applicant's claimed composition as the Hagiwara reference teaches chromate-containing compositions for increased dispersibility and the inclusion of numerous pigments, which are generally known in the art to reduce the corrosion-preventing properties of a composition.

Applicant's claimed composition utilizes a synergy between disclosed components that produces unexpected corrosion inhibiting results. Further, the composition is chromate free. This is a significant advantage the claimed compositions have over the cited reference, as the industrial use of chromates is being severely curtailed by government regulation.

As discussed in Applicant's specification at paragraph 00136, carbon pigments are generally known in the art as detrimental to a composition's ability to inhibit corrosion. The carbon containing component in Applicant's claimed invention not only acts a pigment, but *increases* corrosion-inhibiting properties of the overall composition. This is unexpected and not found in the Hagiwara reference. In addition, the use of substantially insoluble extenders adds a controlled volume to the composition and maintains the inertness of the extenders. If using soluble components, it is unpredictable at best as to how those components change their corrosion-inhibiting properties once in solution. When the cured composition is exposed to an aqueous environment, the neutral to slightly acidic or acidic extender generates a controllable "pH between about 2 and about 8 at an interface between the composition and a substrate" that triggers and enhances the release and transport of cations from the rare earth compound and optionally from the carbon pigments. The generally inert rare earth compound may slowly dissolve due to the pH at the interface and allow for a controlled release of cations that protect a metal substrate. Such synergy and unexpected results are not taught, disclosed or predicted from the Hagiwara reference.

In addition, the composition of Hagiwara is not capable of “naturally curing.” The composition requires heating and chemical reactions to take place in order for it to cure (see Hagiwara at col. 4, lines 37-58). The composition of the claimed invention can be mixed and applied similar to household paint and left to cure naturally. No expensive or time-consuming heating or curing processes are required.

Independent 95

Currently amended claim 95 recites, among other things, “preparing a mill base having one or more binders; adding to the mill base an effective corrosion-inhibiting amount of one or more corrosion-inhibiting carbon pigments, and one or more substantially insoluble extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof, to produce the coating composition; and adding to the mill base one or more rare earth compounds, and optionally one or more additives, or combinations thereof; wherein the non-chromate containing composition is capable of curing naturally and, upon curing, is capable of generating a pH between about 2 and about 8 at an interface between the composition and a substrate”. The arguments in reference to claim 26 are herein incorporated fully.

Independent 134

Currently amended claim 134 recites, among other things, “a non-chromate containing coating composition applied to a substrate, the composition including: one or more corrosion-inhibiting carbon pigments in an effective corrosion-inhibiting amount; one or more rare earth compounds; one or more substantially insoluble inorganic extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof; and one or more binders; wherein at least one of the one or more binders is an epoxy-based resin binder and wherein the non-chromate containing composition is capable of curing naturally and, upon curing, is capable of generating a pH between about 2 and about 8 at an interface between the composition and a substrate”. The arguments in reference to claim 26 are herein incorporated fully.

Applicant respectfully requests that the obviousness rejection be removed for claims 26, 95, 134 and their dependent claims.

Claims 119 (Claim Group 4); and 83-86, 136, 143 and 149 (Claim Group 6) were rejected under 35 U.S.C. § 103(a) as being unpatentable over McCollum et al. (U.S. Patent Application Publication No. 2003/0054193).

Independent Claim 119

Currently amended claim 119 recites, among other things, “one or more corrosion-inhibiting carbon pigments in an effective corrosion-inhibiting amount; one or more substantially insoluble inorganic extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof; one or more rare earth compounds; and one or more binders; wherein the one or more rare earth compounds is a praseodymium(III) sulfate or a praseodymium(III/IV) oxide; wherein the non-chromate containing composition is capable of curing naturally and, upon curing, is capable of generating a pH between about 2 and about 8 at an interface between the composition and a substrate”.

McCollum fails to disclose “one or more substantially insoluble inorganic extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof,” as admitted by the examiner, as discussed on page 9 of the office action. Further, the McCollum reference does not disclose a composition “capable of generating a pH between about 2 and about 8 at an interface between the composition and a substrate.”

Independent Claim 83

Currently amended claim 83 recites, among other things, “one or more pretreatment coatings applied to a substrate to form a pretreated substrate; a coating composition applied to the pretreated substrate, the composition including: one or more corrosion-inhibiting carbon pigments in an effective corrosion-inhibiting amount; one or more binders; one or more substantially insoluble inorganic extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof; one or more rare earth compounds; and a topcoat; wherein the non-chromate containing composition

is capable of curing naturally and, upon curing, is capable of generating a pH between about 2 and about 8 at an interface between the composition and a substrate". Applicant's arguments in regard to claim 119 are herein incorporated in full.

Applicant respectfully requests removal of the obviousness rejection for claims 119 and 83 and their dependent claims.

Claims 39 and 40 (Claim Group 2); 41 (Claim Group 3); 95 (Claim Group 5); 89-91, 123, 137, 138, 144 and 150 (Claim Group 7); 134, 65, 66, 68-71, 141 and 147 (Claim Group 8); 145 (Claim Group 9); and 146, 74-79, 135, 142 and 148 (Claim Group 10) were rejected under 35 U.S.C. § 103(a) as being unpatentable over McCollum et al. (U.S. Patent Application Publication No. 2003/0054193) in view of Hagiwara et al. (U.S. Patent No. 6,630,523).

Independent Claim 39

Currently amended claim 39 recites, among other things, "one or more corrosion-inhibiting carbon pigments in an effective corrosion-inhibiting amount; one or more substantially insoluble inorganic extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof; one or more binders; and one or more corrosion co-inhibitors, wherein at least one of the one or more corrosion co-inhibitors is a rare earth compound and wherein the rare earth compound is a salt of a rare earth-containing compound selected from the group consisting of a hydroxide of a rare earth-containing compound, an oxide of a rare earth-containing compound, a solid solution mixed oxide of a rare earth-containing compound, and combinations thereof; wherein the non-chromate containing composition is capable of curing naturally and, upon curing, is capable of generating a pH between about 2 and about 8 at an interface between the composition and a substrate". Neither the Hagiwara reference nor the McCollum reference discloses a composition "capable of generating a pH between about 2 and about 8 at an interface between the composition and a substrate."

Further the combination of McCollum and Hagiwara references teaches away from the specific composition provided by the present claim. Applicant's present composition purposely contains no chromate compounds due to their known toxicity. Hagiwara teaches the use of chromate compounds as extenders (Hagiwara at col. 3, lines 50-51). The Hagiwara reference

focuses on increased dispersibility of components with no regard for their anti-corrosive properties. Both references describe “laundry lists” of components with no discussion of how they affect the corrosion fighting abilities of the overall composition. One skilled in the art would not be able to use the Hagiwara reference in combination with McCollum to come up with Applicant’s claimed composition as the Hagiwara reference teaches chromate-containing compositions for increased dispersibility and the inclusion of numerous pigments (as does McCollum), which are generally known in the art to reduce the corrosion-preventing properties of a composition.

Applicant’s claimed composition utilizes a synergy between disclosed components that produces unexpected corrosion inhibiting results. Further, the composition is chromate free (non-toxic). As discussed in Applicant’s specification at paragraph 00136, carbon pigments are generally known in the art as detrimental to a composition’s ability to inhibit corrosion. The carbon containing component in Applicant’s claimed invention not only acts as a pigment, but *increases* corrosion-inhibiting properties of the overall composition. This is unexpected and not found in the Hagiwara reference or McCollum reference. In addition, the use of substantially insoluble extenders adds a controlled volume to the composition and maintains the inertness of the extenders. If using soluble components, it is unpredictable at best as to how those components change their corrosion-inhibiting properties once in solution. When the cured composition is exposed to an aqueous environment, the neutral to slightly acidic or acidic extender generates a controllable “pH between about 2 and about 8 at an interface between the composition and a substrate” that triggers and enhances the release and transport of cations from the rare earth compound and optionally from the carbon pigments. The generally inert rare earth compound may slowly dissolve due to the pH at the interface and allow for a controlled release of cations that protect a metal substrate. Such synergy and unexpected results are not taught, disclosed or predicted from the combination of the Hagiwara and McCollum references.

Neither the McCollum reference nor the Hagiwara reference discloses a composition capable of “naturally curing.” The composition of Hagiwara requires heating and a chemical reaction in order for it to cure (see for example, Hagiwara at col. 4, lines 37-57). Similarly, the composition of McCollum requires heat to cure (see McCollum at paragraph [0145], for example). The composition of the claimed invention is capable of being mixed and applied

similar to that of a household paint. The composition can then be left to dry naturally without requiring the expensive and time-consuming step of heating. Such a step is also less practical for larger scale applications, such as applying the composition to aircraft, watercraft or large vehicles or equipment.

Additionally, such a heating requirement teaches away from the claimed invention as heating and chemically reacting the components affects their corrosion-inhibiting properties and will make it difficult, if not completely burdensome, for one skilled in the art to control pH before, during and after heating. Because the components of the claimed invention are substantially inert with respect to each other (e.g., insoluble), the pH, composition and volume can be controlled and predicted by a user, allowing the composition's performance to be maximized.

Independent Claim 41

Currently amended claim 41 one or more corrosion-inhibiting carbon pigments in an effective corrosion-inhibiting amount; one or more substantially insoluble inorganic extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof; one or more binders; and one or more corrosion co-inhibitors, wherein at least one of the one or more corrosion co-inhibitors is a rare earth compound and wherein the rare earth compound is a praseodymium compound selected from the group consisting of a praseodymium solid solution mixed oxide, a praseodymium(III) oxide, a praseodymium(III) hydroxide, a praseodymium(IV) oxide, and combinations thereof; wherein the non-chromate containing composition is capable of curing naturally and, upon curing, is capable of generating a pH between about 2 and about 8 at an interface between the composition and a substrate". Applicant's arguments in regard to claim 39 are herein incorporated in full.

Independent Claim 95

Currently amended claim 95 recites, among other things, "preparing a mill base having one or more binders; adding to the mill base an effective corrosion-inhibiting amount of one or more corrosion-inhibiting carbon pigments, and one or more substantially insoluble extenders

selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof, to produce the coating composition; and adding to the mill base one or more rare earth compounds, and optionally one or more additives, or combinations thereof; wherein the non-chromate containing composition is capable of curing naturally and, upon curing, is capable of generating a pH between about 2 and about 8 at an interface between the composition and a substrate". Applicant's arguments in regard to claim 39 are herein incorporated in full.

Independent Claim 89

Currently amended claim 89 recites, among other things, "one or more pretreatment coatings applied to a substrate to form a pretreated substrate; and a coating composition including: one or more corrosion-inhibiting carbon pigments in an effective corrosion-inhibiting amount; one or more substantially insoluble inorganic extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof; and one or more binders; one or more rare earth compounds; and a topcoat; wherein the non-chromate containing coating composition is applied to the pretreated substrate and wherein the non-chromate containing composition is capable of curing naturally and, upon curing, is capable of generating a pH between about 2 and about 8 at an interface between the composition and a substrate". Applicant's arguments in regard to claim 39 are herein incorporated in full.

Independent Claim 134

Currently amended claim 134 recites, among other things, "a coating composition applied to a substrate, the composition including: one or more corrosion-inhibiting carbon pigments in an effective corrosion-inhibiting amount; one or more rare earth compounds; one or more substantially insoluble inorganic extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof; and one or more binders; wherein at least one of the one or more binders is an epoxy-based resin binder and wherein the non-chromate containing composition is capable of curing naturally and, upon curing, is capable of generating a pH between about 2 and about 8 at an interface between

the composition and a substrate". Applicant's arguments in regard to claim 39 are herein incorporated in full.

Independent Claim 145

Currently amended claim 145 recites, among other things, "a coating composition applied to a substrate, the composition including: one or more corrosion-inhibiting carbon pigments in an effective corrosion-inhibiting amount; one or more rare earth compounds; one or more substantially insoluble inorganic extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof; and one or more binders; wherein the substrate is aluminum, an aluminum alloy, magnesium or a magnesium alloy; wherein the non-chromate containing composition is capable of curing naturally and, upon curing, is capable of generating a pH between about 2 and about 8 at an interface between the composition and a substrate". Applicant's arguments in regard to claim 39 are herein incorporated in full.

Independent Claim 146

Currently Amended claim 146 recites, among other things, "one or more pretreatment coatings applied to a substrate to form a pretreated substrate; and a coating composition applied to the pretreated substrate, the composition including: one or more corrosion-inhibiting carbon pigments in an effective corrosion-inhibiting amount; one or more rare earth compounds; one or more substantially insoluble inorganic extenders selected from the group consisting of a neutral to slightly acidic generating extender, an acidic generating extender, and combinations thereof; and one or more binders; wherein the substrate is aluminum, an aluminum alloy, magnesium or a magnesium alloy; wherein the non-chromate containing composition is capable of curing naturally and, upon curing, is capable of generating a pH between about 2 and about 8 at an interface between the composition and a substrate". Applicant's arguments in regard to claim 39 are herein incorporated in full.

Applicant respectfully requests removal of the obviousness rejection for claims 39, 41, 95, 89, 134, 145 and 146 and their dependent claims.

Claim 4 (Claim Group 1) was rejected under 35 U.S.C. § 103(a) as being unpatentable over Hagiwara et al. (U.S. Patent No. 6,630,523) in view of McCollum et al. (U.S. Patent Application Publication No. 2003/0054193) and Furuya et al. (U.S. Patent Application Publication No. 2002/0082338).

Claim 4 depends from independent claim 26. As discussed above, the Hagiwara reference does not disclose all elements of the independent claim. Applicant respectfully requests withdrawal of this rejection on the grounds discussed above, because neither the references cited (McCollum and Furuya), nor the accompanying reasoning in the Office Action appear to cure the deficiencies noted above.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's representative at (612) 373-6920 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

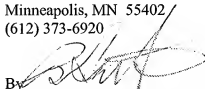
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3/2/09

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on March 2, 2009.

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